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NOTES ON AMERICAN ORCHIDS, INCLUDING NEW SPECIES AND NOMENCLATORIAL CHANGES

BY

CHARLES SCHWEINFURTH

THE following notes, inclusive of the description of new species and changes in nomenclature, have been found advisable in the course of identifying various American collections.

The order of genera follows that of Dr. E. Pfitzer in Engler and Prantl *Die natürlichen Pflanzenfamilien*.

NOMENCLATORIAL NOTES ON CRANICHIS

The following reductions in *Cranichis* have been found advisable after a careful study of closely similar concepts.

***Cranichis diphylla* Swartz** Prodr. Veg. Ind. Occ. (1788) 120—Cogniaux in Urban Symb. Antill. 6 (1909) 357—Fawcett & Rendle Fl. Jam. 1 (1910) 33.

Cranichis guatemalensis Schlechter in Fedde Repert. 2 (1906) 129.

? *Cranichis nigrescens* Schlechter in Fedde Repert. 10 (1912) 482.

Cranichis ovatilabia Schlechter in Fedde Repert. Beihefte 7 (1920) 59.

Cranichis Alfredii Schlechter in Fedde Repert. Beihefte 19 (1923) 82.

The only significant difference between *Cranichis guatemalensis* Schltr. (exemplified by type material) and *C. diphylla* Sw. (represented by authentic material) consists of slight but variable discrepancies in the form of the lip. *C. diphylla* has a suborbicular lip and is described by Fawcett and Rendle as "sessile, roundish in outline", while the lip of *C. guatemalensis* is very broadly ovate and is described as shortly unguiculate and ovate-elliptic. However, Cogniaux in *Urban Symbolae Antillanae* describes the lip of *C. diphylla* as ovate. And moreover, a large series of collections in the Ames Herbarium (identified as *C. guatemalensis*) indicates that this supposed difference is produced largely by varying degrees of expansion of the concave disc. Although the lip of the type of *C. guatemalensis* is unmistakably very shortly clawed and auriculate, this character appears to be variable and often obscure. It follows, therefore, that the two specific concepts are inseparable.

It appears reasonably certain that *Cranichis nigrescens* Schltr. must be regarded as a synonym of *C. diphylla* Sw., but is claimed to be distinct by reason of a pair of impressed-punctate cushions at the base of the ovate lip. However, the lip of *C. diphylla* is described by Fawcett and Rendle as having "2 lateral folds near the base". Moreover, in specimens of *C. diphylla* and *C. guatemalensis* in the Ames Herbarium, such folds with irregular raised projections are often present. Without examining the type of *C. nigrescens*, however, a positive reduction is somewhat questionable.

The Colombian *C. ovatilabia* Schltr. should be regarded as synonymous with *C. diphylla*, as is shown by a drawing of the type made under the supervision of Dr. Schlechter.

Cranichis Alfredii Schltr. from Costa Rica seems to be indistinguishable from *C. diphylla*, since its ovate short-

ly clawed lip is the form seen in typical *C. guatemalensis*. A characteristic of this concept is that the leaves are said to be adorned with white spots on the upper surface.

Other species which are surely closely allied to *C. diphylla* and may prove to be synonymous are the Cuban *C. tenuiflora* Griseb. and the Venezuelan *C. Schlimii* Reichb. f.

In numerous specimens of *C. diphylla* from Costa Rica (in the Ames Herbarium) the flowers are designated as pale greenish, greenish white or white.

Cranichis diphylla Sw., as now delimited, grows in Mexico, Guatemala, Costa Rica and Colombia, as well as in Jamaica and Haiti.

Cranichis Wageneri Reichenbach filius in *Linnaea* 41 (1876) 19.

Cranichis subcordata Schlechter in *Fedde Repert.* 2 (1906) 130.

Cranichis pilosa Fawcett & Rendle in *Journ. Bot.* 47 (1909) 265; *Fl. Jam.* 1 (1910) 33, t. 5, figs. 1-3.

Cranichis costaricensis Schlechter in *Fedde Repert. Beihefte* 19 (1923) 12.

Cranichis Viereckii Ames in *Sched. Orch.* 7 (1924) 1.

A specimen of the type collection of the Venezuelan *Cranichis Wageneri* Reichb. f. in the Ames Herbarium shows that the basal leaf is ovate to oblong-ovate (not oblong, as cited in the type description) and that the linear petals are conspicuously long-ciliate, whereas no ciliation is mentioned or shown in a drawing of the type from the Reichenbach Herbarium in Vienna.

Cranichis subcordata Schltr. from Guatemala is described as having leaves reaching only 3.5 cm. in length and 2.8 cm. in width, whereas typical *C. Wageneri* has leaves at least 7.5 cm. long and 3.3 cm. wide. However, there is no noticeable difference in floral characters.

The West Indian *Cranichis pilosa* Fawc. & Rendle from Jamaica and Santo Domingo is apparently indistinguishable from *C. Wageneri*. The leaf-blades are said to vary from 4 to 10 cm. long and from 2.5 to 7.5 cm. wide. Its flowers are said to be "greenish tinted with pink . . . or umber, . . . petals light pink with white hairs or pale reddish-brown, . . . lip white tinted with green outside and pink inside, or white with reddish markings."

The Costa Rican *Cranichis costaricensis* Schltr. does not differ from *C. subcordata* in any significant detail. In the Ames Herbarium are several collections identified as *C. subcordata* in one of which there is a leaf about 11.5 cm. long and 6.2 cm. wide, and the flowers (according to collectors' notes) range from green or greenish white to white.

The Colombian *Cranichis Viereckii* Ames shows no noticeable difference from the other concepts of this category other than in having a smooth rachis.

The most significant variations in this widely extended species appear to occur in a Mexican collection, *Mattuda 1807*. In this number the flowers have sepals which are acute rather than acuminate, and the somewhat broader lip has the central vein bifurcate at the apex. Of the two specimens forming this collection, one bearing a short raceme of flowers in good condition is about 34 cm. high. The flowers are slightly larger than usual and the lip is rather more rhombic in outline. The other specimen, bearing old and imperfect flowers, is about 61 cm. high and is thus more than twice as high as any specimens of *C. subcordata* in the Ames Herbarium.

A concept which may prove to be a synonym of this species is *Cranichis Engelii* Reichb.f. from Venezuela. Judging from a drawing of the type sent from the Reichenbach Herbarium, it appears to be very similar to *C. Wageneri*, but differs in having the floral bracts pilose,

the petals obtuse (not acute) and the lip somewhat broader with more numerous branches to the lateral veins.

As now comprehended, *C. Wageneri* Reichb.f. extends from the West Indies and Mexico through several countries in Central America to Venezuela, Colombia, and Peru.

SOME ORCHIDS FROM MEXICO COLLECTED BY
E. MATUDA

In a collection of orchids made by E. Matuda in the State of Chiapas, Mexico, from August 1937 to January 1938, occur the following species which are mostly unrecorded from that country. Chiapas adjoins the western boundary of Guatemala and accordingly the occurrence of Guatemalan and even Costa Rican species in the southernmost portion of Mexico is more or less to be expected.

***Cranichis diphylla* Swartz** Prodr. Veg. Ind. Occ. (1788) 120.

Synonymy as previously recorded in this paper.

This species, with its various concepts, extends from southern Mexico to Colombia and the West Indies. It is here first recorded from Mexico.

State of Chiapas, "Esquipula, Cero de laguna, Mapastepec. Enero 1938", *E. Matuda* 2037.

***Cranichis Wageneri* Reichenbach filius** in *Linnaea* 41 (1876) 19.

Synonymy as previously recorded in this paper.

Cranichis Wageneri Reichb.f., including its various forms, extends from southern Mexico to Peru and the West Indies. It is here first recorded from Mexico.

State of Chiapas, "Escuintla-Chiapas, Mt. Orando, Ago 31, 1937", *E. Matuda* 1807.

The Matuda collection shows some degree of variation from the usual form. The sepals are acute rather than

acuminate and the somewhat broader and acute lip has the central vein bifurcate at the apex.

Stelis ovatilabia *Schlechter* in *Fedde Repert.* 15 (1918) 211.

Stelis cyclopetala *Schlechter* in *Fedde Repert. Beihefte* 19 (1923) 279.

This species, which was formerly known from Guatemala and Costa Rica, is now reported from southern Mexico.

State of Chiapas, Siltepec, August 8, 1937, *E. Matuda S-222*.

Lepanthes oreocharis *Schlechter* in *Fedde Repert.* 10 (1912) 483.

This species, heretofore recorded only from Guatemala, is now reported from southern Mexico. One of the two specimens seen is slightly larger vegetatively than the type.

State of Chiapas, Mt. Pasitar, August 3-4, 1937, *E. Matuda 1688*.

Epidendrum cobanense *Ames & Schlechter* in *Sched. Orch.* 5 (1923) 27, fig. 1.

This species, which has been recorded from Guatemala and Honduras, now appears to come from southern Mexico.

State of Chiapas, "Montecristo, in pine land, 1800 m. Enero 1938", *E. Matuda 1981*.

Eulophia alta (*L.*) *Fawcett & Rendle* *Fl. Jam.* 1 (1910) 112, t. 22, figs. 4-8.

Limodorum altum *Linnaeus* *Syst. Nat.* ed. 12, 2 (1767) 594.

Eulophia longifolia *Schlechter* *Die Orchideen* (1914) 347.

This interesting species extends from Florida and the West Indies to Peru, and is here reported from southern Mexico.

State of Chiapas, "Acacogagua, Escuintla. Ago 20, 1937", *E. Matuda 2058*.

Bulbophyllum pachyrrhachis (*A. Rich.*) *Grisebach* Fl. Brit. W. Ind. (1864) 613.

Pleurothallis pachyrachis A. Richard in Sagra Hist. Isl. Cub. Segunda Parte Hist. Nat. 11 (Fl. Cub. Fanerog. 2) (1850) 234, t. 74.

This species, reported from Guatemala to Panama and the West Indies, is now known from southern Mexico.

State of Chiapas, "Jalapa" Escuintla, October 31, 1937, *E. Matuda 2055*.

Odontoglossum oliganthum *Reichenbach filius* in Bonplandia 4 (1856) 321; in Gard. Chron. n.s. 11 (1879) 556.

This species was apparently heretofore recorded only from Guatemala. The position of the lip, which seems to spread from the column at a right angle, suggests that it belongs in the genus *Oncidium*.

The Matuda collection differs from the type in possessing five flowers on its peduncle, instead of two to three.

MEXICO, State of Chiapas, Paso de Pasitar, August 9, 1937, *E. Matuda 1597*.

DESCRIPTION OF NEW SPECIES AND NOMENCLATORIAL NOTES

Pleurothallis aurita *C. Schweinfurth sp. nov.*

Herba parva, pro subgenere gracilis, caespitosa. Caulis basi decumbentes, filiformes, apice monophylli. Folium ellipticum vel elliptico-lanceolatum, coriaceum, apice ob-

tuso minute bilobulatum, sessile. Inflorescentiae in folii axilla fasciculatae, uniflorae, vagina conduplicata subtenta. Flores perparvi, bilabiati. Sepalum dorsale ovale, apice rotundatum, trinervium. Sepala lateralia in laminam semiorbicularem, in positu naturali semiurceolatam, omnino connata. Petala minuta, spathulato-oblonga, apice rotundata. Labellum in positu naturali conico-hemisphaericum cum auriculis binis lineari-lanceolatis erectis intus basi callosis praeditum. Columna generis.

Plant small, up to 10 cm. high to the apex of the leaf, caespitose. Roots fibrous, flexuous, whitish, glabrous. Stem filiform, decumbent at base, up to 6.8 cm. long, unifoliate at the apex, covered below the middle with three close tubular imbricating sheaths (the uppermost much the longest) which are evanescent with age. Leaf solitary, elliptic or elliptic-lanceolate, sessile, up to 4 cm. long and 1.2 cm. wide, minutely bilobed and apiculate at the obtuse apex, erect or more commonly spreading, coriaceous, with the mid-nerve generally conspicuously prominent beneath. Inflorescences 1-flowered, fascicled in the axil of the leaf, subtended by an erect conduplicate spathe which is about 1 cm. long. Flowers very small, bilabiate. Dorsal sepal oval, subacute at the rounded apex, about 3.7 mm. long and 2.4 mm. wide, 3-nerved, slightly concave, somewhat carinate through the basal half on the outer surface. Lateral sepals entirely connate into a lamina which is semiurceolate in natural position, when expanded the lamina is semiorbicular, 4-nerved, about 3 mm. long and 4 mm. wide, with the anterior margins somewhat recurved. Petals small, spatulate-oblong, 1-nerved, about 1.6 mm. long and 0.8 mm. wide near the apex which is rounded fleshy and more or less oblique. Lip conic-hemispherical in natural position, about 1.5 mm. long and 1 mm. wide, 3-nerved, apiculate; at the base there is a pair of erect linear-lanceolate, slight-

ly sigmoid auricles about 1.8 mm. long, furnished inside at the base with a large tuberculate ovoid callus (the calli of the parallel auricles contiguous). Column short, stout, dorso-ventrally complanate, about 1.5 mm. long.

Pleurothallis aurita is allied to *P. concaviflora* C. Schweinf., but is dissimilar in having shorter blunter sepals, spatulate-oblong petals and lip with a pair of long basal auricles. It differs from *P. saccatilabia* C. Schweinf. in its much smaller petals and elongate basal auricles of the lip.

COSTA RICA: vicinity of El General, Province of San José, at 1100 meters altitude, flowers yellow, November 1936, *Alexander F. Skutch 2941* (TYPE in Herb. Ames 55415).

Pleurothallis Broadwayi *Ames Orch.* 2 (1908) 267.

Pleurothallis guadalupensis Cogniaux in *Urban Symb. Antill.* 6 (1909) 432.

Pleurothallis Williamsii *Ames Orch.* 7 (1922) 120.

Pleurothallis guadalupensis, of which we have a specimen of the type number, seems to be inseparable from *P. Broadwayi*. In the latter species, the stems were claimed by Cogniaux (l.c. p. 397) to be monophyllous; but the type collection in the Ames Herbarium, while commonly showing monophyllous stems, often bears two or three leaves on a single stem. On the other hand, *P. guadalupensis* is claimed to have two or three leaves on a stem but is said to be rarely monophyllous (as in our examples of the type collection). Moreover, the shape of the leaves in the two species is practically identical and there appears to be no noteworthy difference in the floral parts of the two concepts. In particular the lip of *P. Broadwayi*, which is described as trilamellate, is in reality strongly 3-nerved with only two conspicuous keels, as in *P. guadalupensis*. In outline also the lip of *P. Broadwayi* might

be described as "leviter trilobatum" as designated for *P. guadalupensis*.

Pleurothallis Williamsii from Panama is somewhat larger than *P. Broadwayi* both vegetatively and florally (especially with respect to the petals), but there seem to be no striking morphological differences between the two concepts. Moreover, there occur in Honduras and in Costa Rica plants closely similar to *P. Williamsii* and somewhat intermediate in character between it and *P. Broadwayi*.

A closely allied species is the Costa Rican *P. nana* A. & S., which differs in having longer narrower sepals and a smaller lip. Moreover, judging from the description and floral analysis of the type, the Colombian *P. lepanthoides* Schltr. seems to belong to this alliance.

Pleurothallis Broadwayi appears to be variable in the number and size of the leaves, in the size of the flowers and in the proportion of the petals.

In its present interpretation, *Pleurothallis Broadwayi* extends from Honduras (*J. B. Edwards* 546, 599), Costa Rica (*C. H. Lankester* 1207, *A. M. Brenes* (3) 1484, *Austin Smith* H 541) and Panama (*R. S. Williams* 976, type of *P. Williamsii*) to Cuba (*Luna* 524), Guadeloupe (*Duss* 4192, type of *P. guadalupensis*), Martinique (*H. Stehlé* 2139), Grenada (*W. E. Broadway* 1846, type of *P. Broadwayi*) and Venezuela, Island of Margarita (*J. R. Johnston* 237).

Pleurothallis Broadwayi* Ames var. *tricarinata
C. Schweinfurth var. nov.

Haec varietas pedicellis longis et labello trilamellato et columna exalata a specie est separata.

A Costa Rican variety of this widespread and variable species is characterized by the longer pedicels of the generally fractiflex raceme, by the presence of a central keel between the lateral ones below the very fleshy apex of the lip and by the absence of distinct wings at the apex of the column.

COSTA RICA: epiphyte in moss on tree trunk at edge of forest in semi-shade, Palmira, Canton Alfaro Ruiz, Province of Alajuela, at 2200 meters altitude, buds lemon yellow, May 9, 1938, *Austin Smith H 532*; at 2400 meters altitude, buds pale greenish yellow, flowers pale lemon, petals [?] glandular, May 16, 1938, *A. Smith H 589*; epiphyte on oak, at 2000 meters altitude, flowers cream-yellow with glandular spots, scape pale brown, May 27, 1938, *A. Smith H 668* (TYPE in Herb. Ames No. 55421): "Arbres des pâturages à Palmira de Alfaro Ruiz, alt. 1840 [meters], 4-vii-1925, *A. M. Brenes (121) 1325.*"

***Pleurothallis saccatilabia* C. Schweinfurth sp. nov.**

Herba parvula, caespitosa. Radices numerosae. Caules filiformes, unifoliati. Folium anguste ellipticum vel oblongo-lanceolatum, apice minute tridenticulatum, basi sessile, valde coriaceum. Inflorescentiae axillares, uniflorae. Flos parvus, carnosulus, bilabiatus. Sepalum dorsale rotundato-ovatum, concavum, subacutum. Sepala lateralia in laminam suborbicularem concavam connata. Petala cuneato-spathulata. Labellum in situ naturali anguste triangulare, basi utrinque retrorse triangulari-auriculatum, medio valde saccatum. Columna brevissima, crassa.

Plant small, caespitose. Roots fibrous, numerous, glabrous, forming dense mats. Stems filiform, up to 5 cm. long, mostly arcuate-spreading with the lower part concealed by one or more close tubular evanescent sheaths. Leaf solitary, narrowly elliptic to oblong-lanceolate, up to about 5.3 cm. long and 1 cm. wide, obtuse with a minutely tridenticulate apex, sessile at the cuneate or subrounded base, thickly coriaceous, in the dried specimen often incurled and commonly forming an obtuse angle with the stem. Inflorescences fascicled in the axil of the leaf, 1-flowered, subtended by a conduplicate spathe. Flower small, distinctly pedicelled, bilabiate, rather fleshy. Dorsal sepal round-ovate, about 4.2 mm. long and 4 mm. wide, subacute, concave, 3-nerved. Lateral sepals connate

into a subrotund concave lamina which is about 4.5 mm. long and 5 mm. wide, 4-nerved, minutely bidenticulate at the broadly rounded apex. Petals oblanceolate-spatulate, 3 mm. long, about 1.9 mm. wide near the rounded apex, 1-nerved with the nerve depressed on the upper surface and carinate beneath. Lip narrowly triangular in natural position with the center deeply concave and the fleshy sides erect, triangular-auriculate on each side at the base, about 2.1 mm. long and 2 mm. wide across the retrorse auricles, obtuse, about 1.1 mm. deep across the abruptly inflated middle. Column very short and stout.

Pleurothallis saccatilabia differs from *P. excavata* Schltr. in having much smaller sepals and lip, and larger petals which are not oblong. From *P. concaviflora* C. Schweinf., it differs in having spatulate (not linear) petals and a less concave lip.

MEXICO: Mt. Ovando, Chiapas, at 1250-2370 meters altitude, flower violet, July 1938, *E. Matuda 2546* (TYPE in Herb. Univ. Mich. DUPLICATE TYPE in Herb. Ames No. 55742).

Isochilus linearis (*Jacq.*) *R. Brown* in Aiton Hort. Kew. ed. 2, 5 (1813) 209—Cogniaux in Martius Fl. Bras. 3, pt. 5 (1898) 3, t. 1.

Epidendrum lineare Jacquin Select. Stirp. Amer. (1763) 221, t. 131, fig. 1.

Cymbidium lineare Willdenow Sp. Pl. 4 (1805) 97.

Leptothrium lineare Kunth ex Steudel Nomencl. ed. 2 (1840) 32.

Isochilus leucanthus Rodriguez Gen. & Sp. Orch. Nov. 1 (1877) 47.

Isochilus linearis R. Brown var. β . *leucanthus* Cogniaux in Mart. Fl. Bras. 3, pt. 5 (1898) 4.

Isochilus Langlassei Schlechter in Fedde Repert. 16 (1920) 442.

From a careful study of a drawing of the type of

Isochilus Langlassei with floral analyses made under the direction of Dr. Schlechter and an actual fragment of the type number in the Ames Herbarium, it appears to be the wise course to reduce this concept to the synonymy of the widespread *I. linearis*. While it is described as a smaller plant than *I. linearis*, the leaves of *I. Langlassei* (in the duplicate type) are up to 3.6 cm. long and well within the length of those of *I. linearis* as described from the West Indies and Brazil and are closely similar to the leaves of *Epidendrum lineare* as figured by Jacquin. The floral parts of *I. Langlassei* closely approximate those represented by Cogniaux for the Brazilian form of *I. linearis*.

Hexadesmia falcata C. Schweinfurth sp. nov.

Herba epiphytica, pro genere magna. Caulis e rhizomate lignoso probabiliter exoriens, inferne teres et pluriarticulatus, superne in pseudobulbum fusiformem dilatatus, apice bifolius. Folia elliptica vel oblongo-elliptica, sessilia. Inflorescentiae axillares, perbreves, pauciflorae; bracteae distichae, imbricatae, conduplicatae. Flos ringens, carnosus. Sepala petalaeque columnam circumdantia. Sepalum dorsale lanceolato-oblongum, valde concavum. Sepala lateralia oblongo-lanceolata, falcata, leviter navicularia, basi saccata. Petala falcata, lanceolato-oblonga, saepe supra medium latiora. Labelium in positu naturali dimidio basali columnae parallelum et parte anteriore valde decurvata, vi extensum in circuitu obovatum, supra medium leviter trilobatum, apice retusum. Columna arcuata. Anthera hemisphaerica; pollinia sex.

Plant epiphytic, about 30 cm. or more tall to the apex of the spreading leaves. Roots fibrous, glabrous. Stems apparently rising from a woody rhizome, 19–23 cm. or more tall, subterete, concealed by the fibres of sheaths

below, 9- to 10-jointed, terminating above in a narrowly ellipsoid or fusiform pseudobulb which is 5.8–8.1 cm. long and bifoliate at the apex. At the proximal end of the rhizome is a short (immature) stem of similar character to the mature stem which is entirely concealed by distichous imbricating sheaths (necessarily broader where covering the terminal pseudobulbous portion) with spreading recurved apices. Leaves two, elliptic to oblong-elliptic, 11.5–21.2 cm. long, about 3.5–5 cm. wide, cuneate below, obtuse with a minutely bilobed and apiculate apex, with the mid-nerve conspicuously sulcate on the upper surface and carinate beneath, chartaceous in the dried specimen. Inflorescences short, axillary, few-flowered, decurved racemes which are apparently subumbellate. Floral bracts distichously imbricating, loose, conduplicate, apparently suborbicular to ovate-elliptic when expanded. Flowers rather large for the genus, apparently ringent in natural position, somewhat fleshy. Dorsal sepal and petals apparently connivent to form a hood surrounding the column. Dorsal sepal oblong or lanceolate-oblong, strongly concave, subacute, about 14.2–15 mm. long and 4–5 mm. wide when spread out. Lateral sepals falcate-oblong-lanceolate, lightly navicular, saccate at the base, more or less spreading, about 12.4 mm. long from the posterior margin at the base to the apex, up to 4.7 mm. wide near the oblique base when expanded, acute. Petals oblanceolate-oblong or lanceolate-oblong, falcate, acute or minutely and sharply retuse, concave and incurved above, obliquely rounded at the base, about 12.5 mm. long and 4–4.5 mm. wide. Lip in natural position with the basal portion erect and parallel to the column and the anterior part abruptly decurved; disc when forcibly spread out obovate in outline, shallowly retuse, distinctly 3-lobed above the middle, about 12–12.9 mm. long in the middle and 9 mm. wide across the lateral lobes when expanded,

with the margins of the anterior half minutely erose-crenulate and the entire longitudinal central portion more or less fleshy-thickened; lateral lobes shallowly semiobovate; mid-lobe subquadrate, broader than long, about 3.4 mm. long in the middle and 6–6.3 mm. wide at the broader base. Column about 8–9 mm. long measured on the dorsal surface, slightly arcuate, semiterete in section with the anterior surface concave; clinandrium 3-lobed, lateral lobes broadly rounded, mid-lobe incurved and bluntly triangular. Anther hemispherical, 2-celled, each cell with three divisions; pollinia 6, complanate-ovoid or complanate-pyriform.

Hexadesmia falcata is apparently allied to *H. bifida* Reichb.f. (of which we have an analytical drawing from the Reichenbach Herbarium), but differs by the elongate many-jointed stem, by the relatively smaller pseudobulb, and by the much larger flowers. *Hexadesmia fasciculata* Brongn. has narrower and less falcate perianth segments and a lip which is not definitely 3-lobed.

COSTA RICA: epiphyte rooted in moss on lateral limb of pasture tree in the semi-shade of the Caribbean cloud forest, Zapote, Canton of San Carlos, Province of Alajuela, at 1400 meters altitude, "foliage flat; thinly coriaceous; semi-rigid 1 or 2 sessile blades from bulb. . . sepals & petals pale lime green; lip light yellow green; some obscure violet lines," August 17, 1938, *Austin Smith H 1095* (TYPE in Herb. Ames No. 55744): Cachi, at 900 meters altitude, "flor verduzca," April 18, 1938, *Manuel Valerio 2576*. (Large and advanced specimen).

***Epidendrum cordiforme* C. Schweinfurth sp. nov.**

Herba parvula, superne praesertim multo ramosa, late patens. Caules tenues, vaginis pustulosis fere omnino obtecti. Folia parva, disticha, saepe subopposita, elliptico-oblonga vel ligulata, in vivo carnosae, in sicco saepe conduplicata et arcuata, apice rotundato-bilobulata. Inflorescentiae saepissime uniflorae, subsessiles. Sepala oblonga vel elliptico-oblonga, acuta vel mucronata. Petala

spathulato-ob lanceolata vel anguste ob lanceolata. Label- lum simplex; lamina columnae adnata et columnam cir- cumdans, late cordata, acuminata, valde concava, nervis conspicuis ornata, marginibus anterioribus utrinque in- volutis ut apex rostriformis appareat. Columna parva.

Plant small, much branched especially above, up to 14.5 cm. tall, widely spreading, sometimes arcuate. Roots fibrous, flexuous, glabrous, commonly numerous, issu- ing from the base and lower parts of the stems. Stems entirely or mostly concealed by densely pustulose leaf- sheaths which are more or less evanescent in age. Leaves small, numerous, spreading, distichous, often suboppo- site, elliptic-oblong to linear, up to 2.1 cm. long including the very short petiole, up to 4.5 mm. wide (blade pre- served in alcohol), fleshy, commonly more or less arcuate and conduplicate in the dried specimen, abruptly bilobed at the apex with nearly equal rounded lobules. The living leaf-blade is apparently very fleshy, with the mid-nerve longitudinally sulcate above so that the upper surface is concave and the lower surface convex. Inflorescences ter- minal, commonly 1-flowered (very rarely 2-flowered), subsessile with a very short recurved peduncle. Pedicel concealed by a pustulose infundibuliform bract. Perianth rigid-nervose, with the parts widely spreading. Dorsal sepal oblong or elliptic-oblong, sometimes slightly broad- er above the middle, about 8–10.5 mm. long and 2–2.6 mm. wide, acute or dorsally mucronate at the apex, 7- to 11-nerved below the middle. Lateral sepals elliptic- oblong or oblong-lanceolate, slightly asymmetric, about 8–10 mm. long and 2.5–2.9 mm. wide, dorsally mucronate at the apex, 7- to 11-nerved below the middle. Petals spatulate-ob lanceolate or narrowly ob lanceolate, 7–9 mm. long, 2–2.7 mm. wide above the middle, acute or sub- acute, 3-nerved to near the apex or 5-nerved below the middle, sometimes minutely bulbose-thickened at the

base within. Lip adnate to the column near the middle of the column; lamina simple, rotundate-cordate or cordate-ovate, concave, ecallose, with radiating thickened nerves of which the three median nerves are commonly the most prominent and the middle nerve is exerted on the lower surface and extends as a keel to the acuminate apex, about 6–8 mm. long from the junction with the column and 6–8.4 mm. wide near the cordate base, with the anterior margins on each side usually involute thus forming an abruptly long-acuminate or rostrate apex. Column short, stout, gradually dilated above, up to about 2 mm. long on the dorsal surface in the middle, slightly longer on the sides. Pollinia four, strongly complanate, ellipsoid, rounded or obovoid.

The collection *A. Smith H 1092*, while obviously belonging to this species, bears immature flowers with rather smaller perianth segments and narrower lip than typical.

Epidendrum cordiforme differs from *E. fundi* Ames in having pustulose leaf-sheaths and in having dissimilar sepals, petals and lip. It has commonly solitary flowers and larger perianth than *E. microcardium* Schltr. It is much smaller in every respect than *E. exile* Ames.

COSTA RICA: epiphyte in moss on living tree in semi-shade within Caribbean cloud forest zone, Palmira, region of Zarcero, at 6000 feet altitude, flowers pale old gold changing to dull pinkish russet in mature state, about 14 mm. long and broad when expanded, September 27, 1937, *Austin Smith A 458* (Herb. Field Mus. No. 941812); same habitat in subtropical zone at Palmira, Province of Alajuela, Canton Alfaro Ruiz, at 2200 meters altitude, "the very pale greenish-yellow [sepals] tipped obscure dusky violet: the basal part of bud (as well plant stems) with purplish glands. fl. opening campanulate-pale yellowish or even cream color", August 10, 1938, *Smith H 1092*; same habitat and locality as *H 1092*, semi-decumbent, "fls. plain sulphine yellow," September 2, 1938, *Smith H 1163*; same locality as the last, on tree trunk in open woodland in semi-shade, at 1900 meters alti-

tude, in subtropical zone, stem up to 15 cm. tall, "fls. sulphine yellow to buffy yellow", October 4, 1938, *Smith H 1247* (TYPE in Herb. Ames No. 55372): El Gallito, at 1900 meters altitude, "Flor amarillo pálido, 30-10-38", *Manuel Valerio 2665*.

Hofmeisterella eumicroscopica *Reichenbach filius* in *Walp. Ann.* 3 (1852) 563; in *Xen. Orch.* 1 (1854) 41, t. 18, figs. I, II, 1-8.

Hofmeistera eumicroscopica Reichenbach filius *De pollinis Orch. generi ac struct.* (1852) 30.

In the description and floral analysis (in *Xen. Orch.* l.c.) it is indicated that the flower of this species has two pollinia, whereas a flower from *J. F. Macbride 3774* shows four pollinia (one pair of large pollinia and one pair of small ones in front of the larger).

This genus, which is at present monotypic, was found by Warszewicz at Loxa in Ecuador at about 9000 feet altitude. In addition, we now have it from Peru (Yanano, about 6000 feet altitude, *J. F. Macbride 3774* and Valle de Santa Ana, Prov. de la Convención, *F. L. Herrera 3007*) and from Venezuela (Tabay, Mérida, at about 5400-6600 feet altitude, *Gehriger 451*).

Oncidium ansiferum *Reichenbach filius* in *Bot. Zeit.* 10 (1852) 696; in *Hamb. Gartenzeit.* 13 (1857) 315; in *Xen. Orch.* 1 (1858) 232, t. 98, figs. I, II, 1—Lindley *Fol. Orch. Oncidium* (1855) p. 47—Kränzlin in *Engler Das Pflanzenr.* IV. 50, pt. 2 (Heft 80) (1922) 272, fig. 22 G, a-d.

Oncidium ensatum Hort. Berol. ex Reichenbach filius in *Xen. Orch.* 1 (1858) 232, in synonym., non Lindl.

Oncidium hieroglyphicum Hort. Berol. ex parte ex Reichenbach filius in *Xen. Orch.* 1 (1858) 232, in synonym.

Oncidium Lankesteri Ames in *Sched. Orch.* 4 (1923) 53.

The concept *Oncidium Lankesteri*, which is a frequent and rather variable species of the higher levels of Costa Rica, seems to be inseparable from *O. ansiferum* as represented in our herbarium by a fragment from the type in the Reichenbach Herbarium in Vienna, as well as by an analytical drawing of the flower etc. made by Reichenbach from this type and a photographic record of typical material in the Lindley Herbarium at Kew.

The pseudobulb represented in the analytical drawing of the type made by Reichenbach is oval or round-ovate in outline (very similar to that of the concept *O. Lankesteri*), and not oblong as described by Reichenbach (in Xen. Orch. l. c.). In view of the above-cited records of the type, the drawing of the lip in Xenia is also faulty. Considerable variability exists in this species in regard to vegetative and floral size and in the degree of tothing on the wings of the column.

The type of *O. ansiferum* from Panama (Chiriqui) was found at 8000 feet, while the form described as *O. Lankesteri* occurs at altitudes varying from 3000 to 7000 feet.

Allied species are represented by *Oncidium suave* Lindl., *O. Suttonii* Batem. ex Lindl. and especially by *O. naranjense* Schltr. All of these species, however, differ from *O. ansiferum* in the form of the lip.

***Oncidium tigrinum* La Llave & Lexarza** Nov. Veg. Descr. fasc. 2 (1825) 36.

Oncidium Barkeri Lindley in Bot. Reg. 27 (1841) Misc. p. 81.

Odontoglossum Ghiesbreghtianum A. Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3 (1845) 27.

Oncidium unguiculatum Lindley in Journ. Hort. Soc. London 1 (1846) 303, cum ic.

Odontoglossum tigrinum Lindley Fol. Orch. Odontoglossum (1852) p. 5.

Oncidium ionosmum Lindley in Gard. Chron. (1853) 726.

Oncidium tigrinum La Llave & Lexarza (B) *unguiculatum* Lindley Fol. Orch. Oncidium (1855) p. 45.

Oncidium tigrinum La Llave & Lexarza var. *Montefiorae* Cogniaux Dict. Icon. Orch., Oncidium (1901) t. 4 B.

Judging from the type description of *Odontoglossum Ghiesbreghtianum* supplemented by a photograph and a drawing of a flower (presumably from the type) in the Herbarium of the Muséum d'Histoire Naturelle in Paris, it appears to be certain that this concept is referable to *Oncidium tigrinum*. Moreover, the fact that the lip projects at almost a right angle to the column marks the species as a member of the genus *Oncidium* rather than of *Odontoglossum*.

It does not appear to us to be advisable to follow Kränzlin (in Engler Das Pflanzenreich IV. 50, pt. 2 (Heft 80) (1922) 234) in referring *Oncidium splendidum* A. Rich. ex Duchartre to *Oncidium tigrinum*. The almost sessile lip with different calli of the former species seems to be diagnostic, even though the two concepts appear to be closely allied. *Oncidium splendidum* has been reduced to varietal status, as *O. tigrinum* var. *splendidum*, by J. D. Hooker in Bot. Mag. 97 (1871) t. 5878.

Cryptarrhena lunata R. Brown in Bot. Reg. 2 (1816) t. 153—Reichenbach filius in Bot. Zeit. 10 (1852) 766—Fawcett & Rendle Fl. Jam. 1 (1910) 135, t. 30, figs. 6, 7.

Clinhymenia pallidiflora A. Richard & Galeotti in Compt. Rend. Acad. Sci. Paris 13 (1844) 512, *nomen*.

Orchidofunckia pallidiflora A. Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3 (1845) 24.

Cryptarrhena Kegelii Reichenbach filius in Bot. Zeit.

10 (1852) 766—Cogniaux in Martius Fl. Bras. 3, pt. 6 (1905) 228, t. 94, fig. 1.

Cryptarrhena pallidiflora Reichenbach filius in Bot. Zeit. 10 (1852) 766.

Cryptarrhena unguiculata Schlechter in Fedde Repert. Beihefte 8 (1921) 103; Beihefte 57 (1929) t. 99, Nr. 389.

To those names which have been found to be synonymous with *Cryptarrhena lunata*, should be added *C. Kegeli*. A series of records of the concept *C. Kegeli* from the Reichenbach Herbarium shows a plant which differs from *C. lunata* only in having entire petals which are narrower than in some forms of that species. Moreover, the description (including measurements) as given by Fawcett and Rendle for the typical Jamaican *C. lunata* corresponds singularly well with that of the South American *C. Kegeli* as portrayed by Cogniaux in Martius Flora Brasiliensis.

Cryptarrhena unguiculata seems to differ from typical *C. lunata* in having slightly larger flowers, but otherwise it appears to coincide well with the aforesaid records of *C. Kegeli*.

Considerable variability occurs in this species in the width of the petals, as well as in the form of the lobes of the lip.

As now understood, *Cryptarrhena lunata* extends from Mexico to Costa Rica. It also occurs in Jamaica and Trinidad, and in British Guiana, Surinam, Colombia, Ecuador and Peru.

Sigmatostalix guatemalensis Schlechter in Fedde Repert. 10 (1911) 253.

Sigmatostalix costaricensis Rolfe in Kew Bull. (1916) 78; in Bot. Mag. 145 (1919) t. 8825.

Sigmatostalix poikilostalix Kränzlin in Engler Das

Pflanzenr. IV. 50, pt. 2 (Heft 80) (1922) 310, fig. 27
D, a-e.

On the basis of the plate of *S. costaricensis* (in Bot. Mag. l.c.) and of the description, there appears to be no doubt that it should be referred to the concept *S. guatemalensis*, as described and as represented in the Ames Herbarium by an analytical drawing made under the supervision of Dr. Schlechter. In *S. costaricensis* the leaves are recorded as somewhat broader and the sepals and petals somewhat longer than in *S. guatemalensis*, and the lip is described as minutely apiculate or acute (not obtuse) with the basal callus dentiform and subobtuse (not triangular-linear). A series of Costa Rican specimens referred to *S. costaricensis* have an obtuse lip commonly minutely apiculate and the basal callus varies from dentiform-retuse or dentiform-obtuse to dentiform linear-triangular.

It is also certain that *S. poikilostalix*, which is represented in the Ames Herbarium by a photograph of the type with analytical drawings, must be synonymous with *S. guatemalensis* since its only differences are a slightly narrower lip than in the latter species and a "straight" column.

Schlechter (in Fedde Repert. Beihefte 19 (1923) 68) considered *S. poikilostalix* to be synonymous with *S. costaricensis* and suspected that both were referable to *S. guatemalensis*.

It is unfortunate that the description of *S. guatemalensis* cites no color for the flowers, those of the other two forms being greenish yellow blotched with reddish brown or purple.

Although the species appears to be frequent in Costa Rica and the Chiriqui Province of Panama, it has been but once recorded from Guatemala.

Sigmatostalix unguiculata *C. Schweinfurth* sp.

nov.

Herba parva, epiphytica, caespitosa. Pseudobulbi approximati, late patentes, ellipsoidei vel ovoidei, valde complanati, monophylli, vaginis foliiferis nonnullis utrinque suffulti. Folia anguste oblonga vel oblongo-elliptica, apice rotundato oblique bilobulata, in sicco nitida et submembranacea. Inflorescentiae axillares, breves, laxissime rariflorae. Flores parvuli. Sepala petalaeque reflexa, membranacea, elliptico-lanceolata vel ovato-lanceolata, acuminata. Labellum perlonge unguiculatum; lamina profunde trilobata cum lobis lateralibus valde arcuato-porrectis, triangulari-linearibus et lobo intermedio pandurato, subacuto. Columna gracillima, arcuata.

Plant small, caespitose, epiphytic. Roots fibrous, flexuous, glabrous. Pseudobulbs ellipsoid or ovoid, apparently strongly complanate, monophyllous, about 1–1.5 cm. long, shining, rugose in the dried specimen, supported on each side by commonly three imbricating leaf-bearing sheaths. Leaves linear-oblong to oblong-elliptic, obliquely bilobulate at the rounded apex, conduplicate at the narrowed base, up to 5.6 cm. long and 8 mm. wide (few perfect blades present), submembranaceous, rather shining above, dull beneath. Inflorescences short, axillary, very remotely few-flowered. Flowers apparently secund, widely spreading. Pedicellate ovary filiform, about 8 mm. long. Flowers small. Sepals and petals reflexed, membranaceous, 3-nerved, with a dorsal keel near the apex. Dorsal sepal elliptic-lanceolate, about 5–5.5 mm. long and 2 mm. wide, acuminate with conduplicate upper margins, concave. Lateral sepals ovate-lanceolate, about 5–5.5 mm. long and 2 mm. wide, slightly oblique, acuminate, apiculate. Petals obliquely ovate-elliptic, about 4.8 mm. long and 2.2 mm. wide, acuminate. Lip long-unguiculate with the lamina abrupt-

ly deflexed; claw elongate, narrowly linear, about 5 mm. long, fleshy, 5-nerved; lamina abruptly 3-lobed, cordate at the base with the lateral lobes abruptly arcuate-spreading then porrectly inflexed, triangular-linear, fleshy-thickened, densely pubescent; the anterior margins of the oblique bases of the lobes pass into a fleshy ovate-triangular bilobed callus which occupies the entire center of the lip; mid-lobe narrowly pandurate, 1-nerved, about 2 mm. long with its dilated base concealed by the central callus, the narrower isthmus dilated into a transversely ovate-rhombic apical portion which is subacute with a dorsal subapical keel. Column slender, arcuate, gradually dilated above, with a prominent stigmatic orifice, about 4.8 mm. long in natural position.

Sigmatostalia unguiculata is apparently unique in the genus by reason of its long, slender claw and its peculiar arcuate-porrect narrow lateral lobes of the lip. In some respects it suggests the Colombian *S. minax* Kränzl.

COSTA RICA: epiphyte on fallen branch, vicinity of El General, Province of San José, at 975 meters altitude, flowers greenish, December 1936, *Alexander F. Skutch 3020* (TYPE in Herb. Ames No. 55414).

EXPLANATION OF THE ILLUSTRATIONS

PLEUROTHALLIS AURITA *C. Schweinf.* 1, plant, natural size. 2, flower, from side, six times natural size. 3, lip, from side, six times natural size. 4, lip, from front, six times natural size. 5, dorsal sepal, petals and column, six times natural size.

PLEUROTHALLIS SACCATILABIA *C. Schweinf.* 6, plant, natural size. 7, flower expanded, from front, six times natural size. 8, lip, from side, seven times natural size. 9, lip expanded, from front, seven times natural size. 10, flower, from side, six times natural size.

Drawn November 1939 by G.W. DILLON

HEXADESMIA FALCATA *C. Schweinf.* 1, plant, one half natural size. 2, flower, from front, with lateral sepals expanded, one and one half times natural size. 3, lateral sepal, from back, one and one half times natural size. 4, dorsal sepal, one and one half times natural size. 5, petal, one and one half times natural size. 6, column and lip, one and one half times natural size. 7, three pollinia, five times natural size. 8, anther, five times natural size.

Drawn June 1939 by G.W. DILLON

EPIDENDRUM CORDIFORME *C. Schweinf.* 1, plant, natural size. 2, flower, from front, twice natural size. 3, petal, twice natural size. 4, lateral sepal, twice natural size.

SIGMATOSTALIX UNGUICULATA *C. Schweinf.* 5, plant natural size. 6, flower, from front, three times natural size.

Drawn November 1939 by G.W. DILLON